No. 610,950. Patented Sept. 20, 1898.

H. F. SMITH.

PAPER BOX.

(Application filed Feb. 15, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1

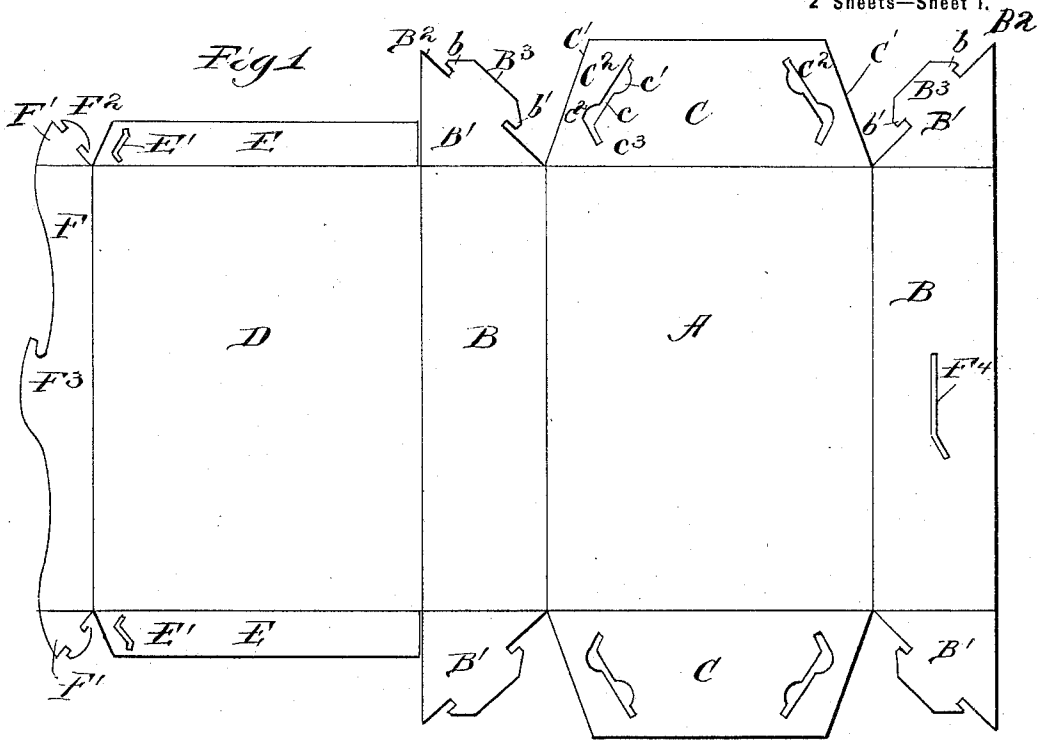
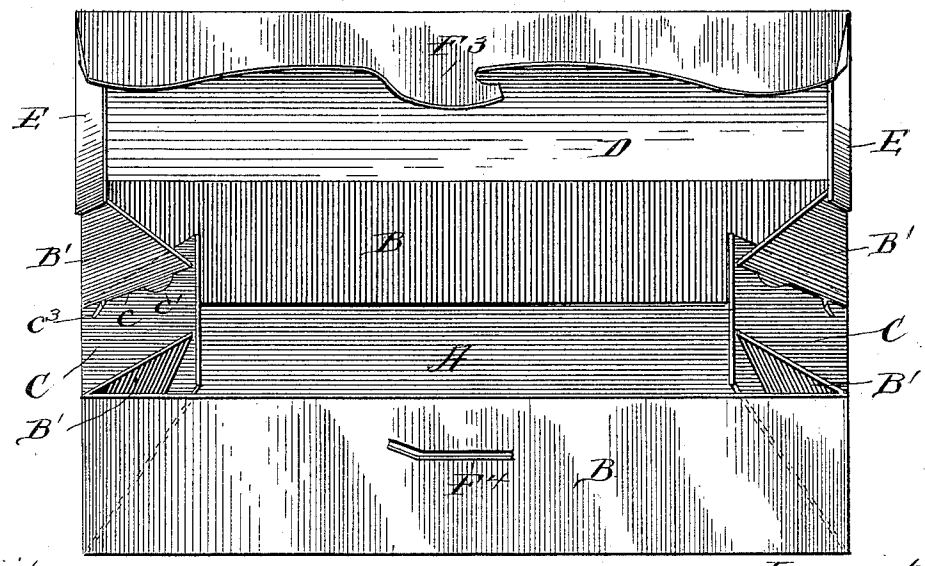


Fig 2



Witnesses
W. C. Codd
Allan A. Murray

Inventor
Howard F. Smith
By Coburn & Strong
Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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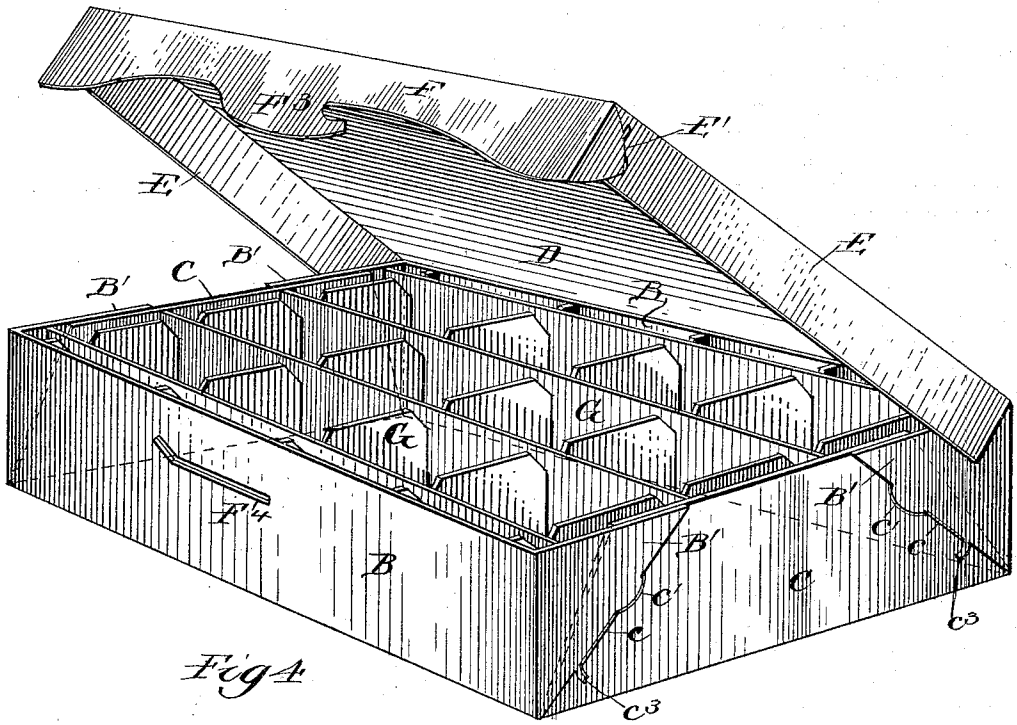


Fig 4.

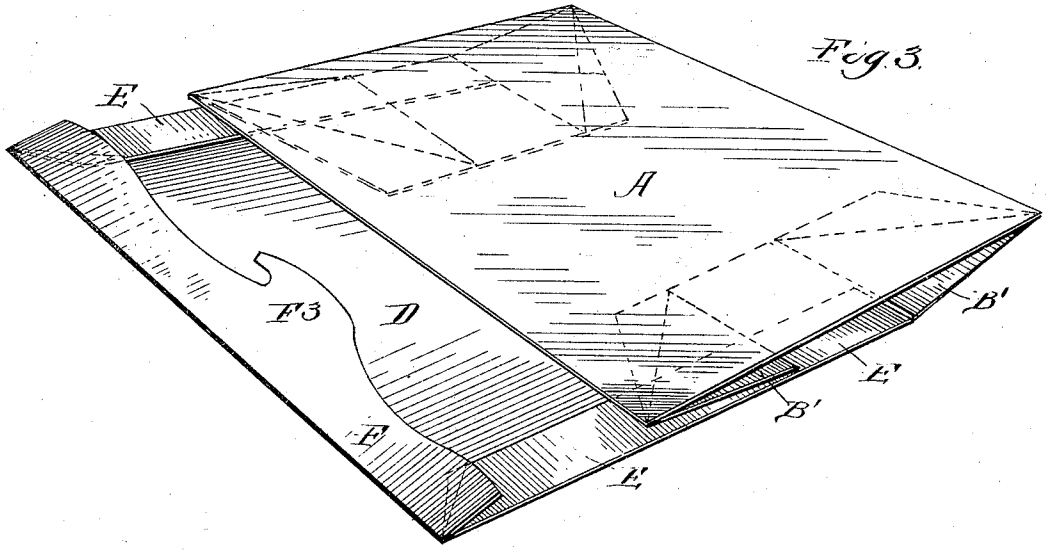


Fig 3.

Witnesses
W. C. Curtis
Allan A. Murray

Inventor
Howard F. Smith
By Coburn & Strong
Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HOWARD F. SMITH, OF ELKHART, INDIANA.

PAPER BOX.

SPECIFICATION forming part of Letters Patent No. 610,950, dated September 20, 1898.

Application filed February 15, 1897. Serial No. 623,500. (No model.)

To all whom it may concern:

Be it known that I, HOWARD F. SMITH, a citizen of the United States, residing at Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Paper Boxes, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the blank from which a box constructed according to my invention is made. Fig. 2 is a perspective view of such box struck up and partly collapsed. Fig. 3 is a perspective view of a box completely collapsed and ready for shipment. Fig. 4 is a perspective view of a box opened up provided with a filler and ready for use.

My invention relates to knockdown paper boxes, and has for its object to provide a box which when struck up can easily be collapsed into a form suitable for shipment and can later be opened up for use by the purchaser without requiring from him the process of striking up or engaging together the various parts. Such a box is particularly adapted to receive a filler for the holding of eggs or other like contents, since such filler holds the box in proper position when opened out. My invention is equally adapted, however, to apply to any paper box, without regard to such filler.

Referring to the drawings by letter, A represents the body portion of the blank, which in most cases will constitute the bottom of the box.

B B designate the two sides, formed integral with A, and C C the two ends.

As shown in the drawings, the sides B B are longer than the ends C C. The reverse may equally well be the case, however. Each of the sides B is provided at each end with a triangular flap B′, the outer edge of which, B^2, is preferably formed at an angle of approximately forty-five degrees with the other edges thereof. Upon this edge is formed a tongue B^3. The construction of this tongue may be considerably varied. In the drawings I have shown it as provided with two hooks or projections *b* and *b′* at opposite ends thereof.

Of the end pieces C C the opposite edges C′ C′ are beveled off, as shown. Adjacent to each such edge and disposed at an angle of approximately forty-five degrees to the base of the end piece C, I form a slot C^2. The particular form of this slot, like that of the tongue, may be substantially varied. I find, however, that an especially secure form of lock, as well as one easy to operate, is obtained by forming the slot C^2 to comprise a straight slit *c*, an upper and a lower curved recess *c′* and c^2, respectively, on opposite sides of the slit *c*, and a short diagonal branch c^3 at the lower end of the said slit.

When the box is to be struck up, it will be seen that the hook *b* may first be inserted in the upper end of the slot C^2, for which purpose it made be bent slightly, as permitted by the recess *c′*. The whole tongue is then pressed upward in the slot and the lower hook *b′* inserted in the lower portion thereof, being bent slightly, as permitted by the recess c^2, while the branch c^3 permits the entry of the tip of the tongue without fracture. The whole tongue will be thus firmly engaged with the slot C^2—even more firmly than usual with knockdown boxes of this general type. Any slight increase of difficulty in joining the tongue and slot, as compared with such prior constructions, is of comparatively little importance, since my present construction is intended to be struck up by a skilled operative in a factory and not by the unskilled purchasers thereof.

In the drawings I have shown my box as provided with a cover D. It is obvious that my invention may, however, be applied to boxes without any cover. The cover D is shown as hinged at one edge to one of the sides B. The said cover is provided at either end with an end piece E, corresponding to the end pieces C C, and at one end of each of the said end pieces is formed a slot E′, analogous to the slot C^2. The cover D is further provided with a side piece F, to each end of which is secured a flap F′, corresponding to the flaps B′, and provided with a tongue F^2, corresponding to the tongues B^3. The side piece F of the cover D may further be provided with a hook F^3, in which case there will be formed a slot F^4, adapted to receive the same in that side piece B to which the cover is not attached. To strike up this box, the operative will swing up the end pieces C C into a vertical position and then the side pieces B B. The flaps B′ will next be bent around and outside of the end pieces C C and the

tongues B^3 caused to engage with the slots C^2 in the manner already described. In case a cover D is employed the end pieces E and side piece F thereof are swung up and locked in a similar manner. The box is thus in a condition for use and may receive a filler G, as shown in Fig. 4, such as are used in egg-cases of any ordinary construction, or may receive any other contents. Ordinarily, however, it will be desired to ship the box from the factory, the said box receiving its contents when it reaches the hands of the purchaser. For this purpose a box so constructed is adapted to collapse into a flat form.

Fig. 2 shows the box in a partially-collapsed state. To effect this, it will be seen that the end pieces C C are swung inward, in which operation each of the locks, from the arrangement and form of both the slot and the tongue, acts as a species of hinge, while at the same time the side pieces B B also swing inward, but are prevented from binding against the end pieces C C by the beveled edges C′ of the latter. By continuing this proceeding the entire box-body may be collapsed into a flat shape, as shown in Fig. 3, and if a cover be employed it also may be similarly collapsed, as shown in said figure. In this condition the box is ready for shipment. When received by the purchaser, it requires but the simplest operation to open up the collapsed box. In the box so opened up there may be inserted the filler G, which likewise will be transmitted in a collapsed state, or any other contents may be placed therein.

As heretofore pointed out, it is obvious that many changes in the details of this construction, in the relative proportions of the parts, and particularly in the form of the locking devices may be made without departing from the gist of my invention.

Having thus described the construction of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a paper box, a bottom A; side pieces B; end pieces C; and means for detachably locking the said side and end pieces; all adapted to permit the box to collapse into a flat form without unlocking or creasing said pieces.

2. In a knockdown paper box, a bottom A; side pieces B provided with flaps B′; end pieces C; and means for detachably interlocking the said flaps with the said end pieces; all adapted to permit the box to collapse into a flat form without disengaging or creasing the said pieces.

3. In a knockdown paper box, a bottom A; side pieces B; flaps B′ provided with tongues B^3; and end pieces C provided with slots C^2 for receiving the tongues B^3; all adapted to permit the box to collapse into a flat form without disengaging or creasing the said pieces.

4. In a knockdown paper box, a bottom A; side pieces B; flaps B′ cut along their outer edges B^2 at an angle of approximately forty-five degrees and provided with tongues B^3; and end pieces C provided with the slots C^2, disposed at an angle of approximately forty-five degrees to the base of the said end pieces, adapted to receive the tongues B^3; all adapted to permit the box to collapse into a flat form without disengaging or creasing said pieces.

5. In a knockdown paper box, a bottom A; side pieces B; flaps B′ integral with the said sides, cut along their outer edges B^2 at an angle of approximately forty-five degrees and provided thereon with tongues B^3; and end pieces C beveled along their edges C′ and provided with slots C^2 disposed at an angle, of approximately forty-five degrees to the base of said end pieces adapted to receive the tongues B^3; all adapted to permit the box to collapse into a flat form without disengaging or creasing said pieces.

6. In a knockdown paper box, the bottom A; the sides B; the flaps B′ each cut along its outer edge at an angle of approximately forty-five degrees and carrying thereon a tongue B^3 provided with hooks b and b' at opposite ends thereof; and the end pieces C, each beveled along its edges, as at C′, and provided with slots C^2 comprising a slit c formed at an angle of approximately forty-five degrees to the base of the end piece, curved recesses c' and c^2 at opposite ends and upon opposite sides of the slit c, and a diagonal branch c^3 at the lower end of said slit; all adapted to permit the box to collapse into a flat form without disengaging or creasing said pieces.

7. In a paper box, a bottom A; side pieces B; end pieces C; and means for detachably locking the said side and end pieces; in combination with a cover D hinged to one of the said side pieces B; all adapted to permit the box to collapse into a flat form without unlocking or creasing said pieces.

8. In a paper box, a bottom A; side pieces B; end pieces C; and means for detachably locking the said side and end pieces; in combination with a cover D hinged to one of the said side pieces B; end pieces E; the side piece F; and means for locking the said side piece and end pieces; all adapted to permit the box to collapse into a flat form without unlocking or creasing said pieces.

9. In a knockdown paper box, a bottom A; side pieces B; end pieces C; and means for detachably locking the said side and end pieces; all adapted to collapse into a flat form for shipment without unlocking or creasing said pieces; in combination with a filler G also adapted to collapse into a flat form, and to hold the parts of the box in position when the box is opened up and the filler inserted therein.

HOWARD F. SMITH.

Witnesses:
A. A. MURRAY,
FLORA BROM.